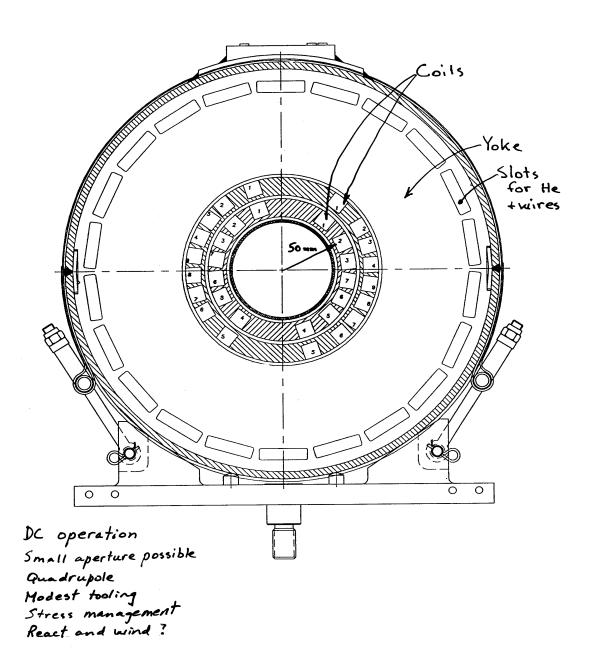
## **Slotted Magnets**

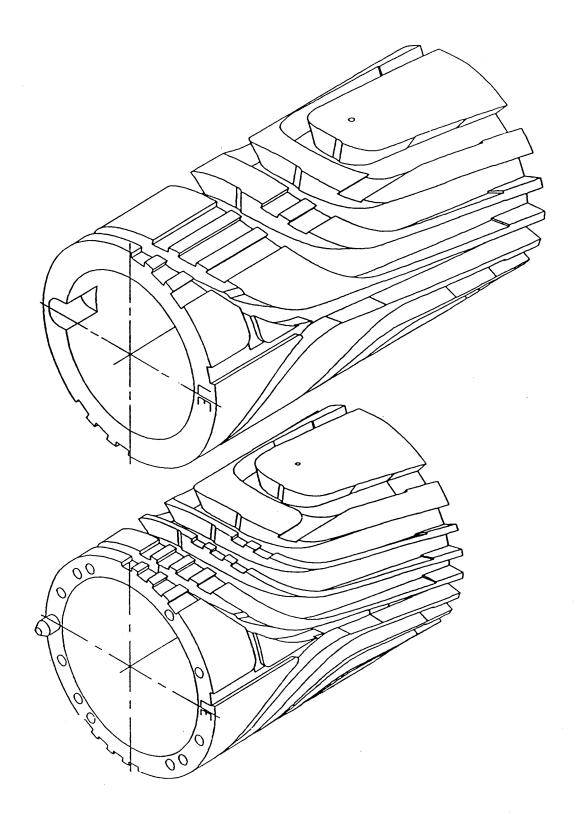
Erich Willen, Brookhaven Pt. Jefferson November 17, 1998

- ◆ Slotted magnets are being built in the helical magnet Spin program at Brookhaven
- ♦ Such magnets have been proposed for the Muon Collider
- ♦ The construction technique has several attractive features:
- Windings are subdivided and held in place---no buildup of Lorentz forces
- ♦ End forces are fully contained
- ◆ Small forces on superconductor during building and during operation
- ◆ These features may make possible a high field magnet made of brittle superconductor
- ♦ Only modest tooling is required to build prototypes

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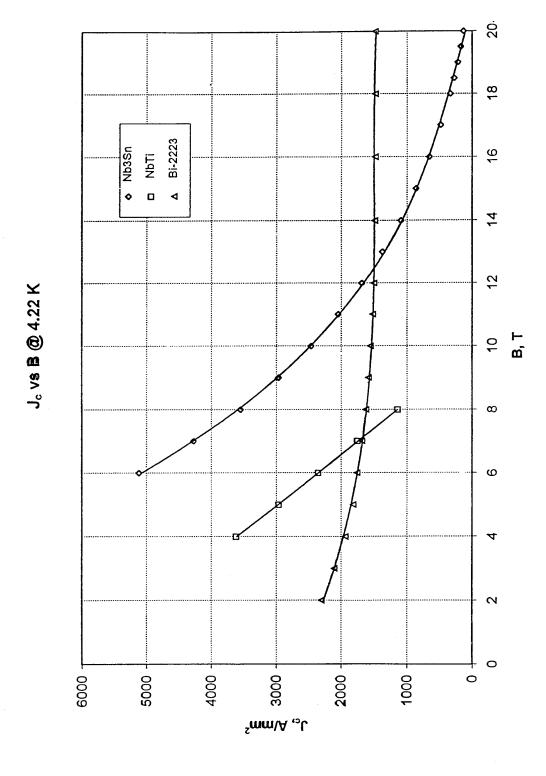
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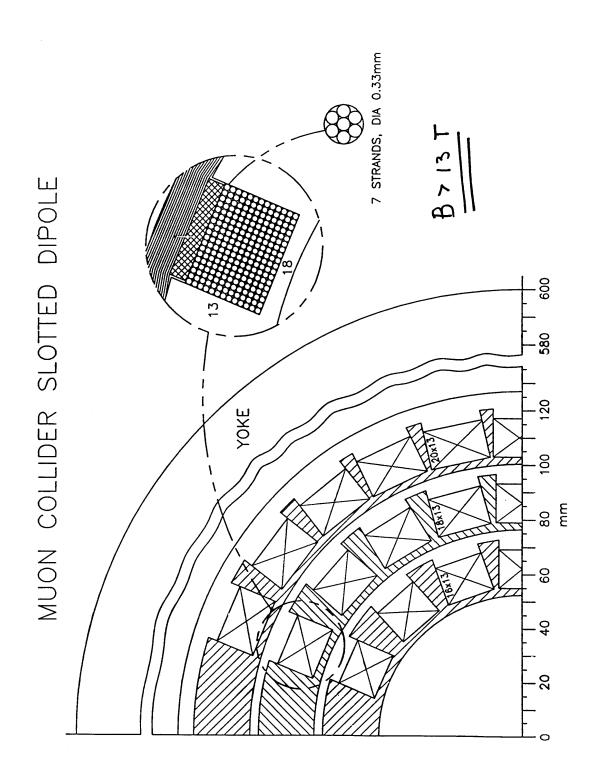


## Selected mechanical parameters of the helical magnet.

Parameter	Value Inner, Outer
Number of cylinders	2
Num of current blocks per cylinder	7, 9
Num of cable turns per layer	12, 12
Num of layers per current block	9, 9
Num of cable turns per block	108, 108
Num of cable turns per cylinder	756, 972
Total turns	1728
Coil inner radius (mm)	49.7, 68.6
Coil outer radius (mm)	60.0, 78.9
Helix, magnetic length (mm)	2400
Helix, rotation (deg)	360
Yoke IR in straight section (mm)	84.5
Yoke IR in ends (mm)	114.4
Yoke outer radius (mm)	177.8

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